NASA
Glenn
Success
Stories

Art Restoration Using Atomic Oxygen

St. Albans Church, Cleveland, Ohio

TECHNOLOGY

Very fine texturing of organic surfaces or removal of organic layers can be accomplished with a low-energy beam of oxygen atoms. If the organic layer is on paint or another surface that is less reactive, the organic layer can be preferentially removed.

COMMERCIAL APPLICATION

- **Medical**

Increased cellular attachment to implants stimulation
Improved fixation of orthopedic implants

- **Industrial**

Improve polymer handling, alter wetability
Reduce or increase friction, increase heat transfer
Improve adhesive bonding, improve paintability

- **Art Restoration and Cleaning**

Removal of soot, varnishes, urethanes, graffiti, finger prints and other organic contaminants

SOCIAL / ECONOMIC BENEFIT

- Minimally disturbing to pigments
- Requires no physical contact with the surface
- Can improve radiative heat transfer by a factor of 8 to 10
- Allows precise control of exposure
- Can be scaled-up to meet most processing needs

St. Albans "Madonna of the Chair" damaged in a 1989 fire

NASA APPLICATIONS

- Technology developed for space propulsion and simulation of the space environment has made it possible to alter the surface of many materials through texturing.

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Date of Technology: